AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that a layer comprising an n-type GaN-based compound is formed on a substrate using ammonia as a raw material, characterized in that the ammonia is charged into a charging container so that at least a portion of the ammonia is in a liquid phase and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

2. (previously presented): The method according to claim 1, characterized in that the layer comprising the n-type GaN-based compound has an oxygen concentration suppressed to a low level.

3. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that a layer comprising an p-type GaN-based compound is formed on a substrate using ammonia as a raw material, characterized in that the ammonia is charged into a charging container so that at least a portion of the ammonia is in a liquid phase and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

4. (previously presented): The method according to claim 3, characterized in that the layer comprising the p-type GaN-based compound has an oxygen concentration suppressed to a low level.

5. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that an active layer is formed on a substrate using ammonia as a raw material, characterized in that the ammonia is charged into a charging container so that at least a portion of the ammonia is in a liquid phase and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

6. (previously presented): The method according to claim 5, characterized in that the active layer comprises the GaN-based compound semiconductor manufactured and has an oxygen concentration suppressed to a low level.

7. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that a layer comprising a GaN-based compound is formed on a substrate using ammonia as a raw material, characterized in that the ammonia is charged in a gaseous state into a reaction chamber housing therein the substrate so that at least a portion of the ammonia is in a liquid phase and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm as determined by Fourier-transform infrared spectroscopy (FT-IR).

8. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that an active layer containing In is formed on a substrate using ammonia as a raw material, characterized in that the ammonia is charged into a charging container so that at least a portion of the ammonia is in a liquid phase and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

9. (previously presented): The method according to claim 8, characterized in that the active layer containing In is made of an In-containing organic metal material that is trimethyl indium.

10. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that a p-type layer containing Mg is formed on a substrate using ammonia as a raw material, characterized in that the ammonia is charged into a charging container so that at least a portion of the ammonia is in a liquid phase and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

11. (previously presented): The method according to claim 10, characterized in that the p-type layer containing Mg is made of a Mg-containing organic metal material that is bis(cyclopentadienyl)Mg.

12. (previously presented): The method according to claim 10 or claim 11, characterized in that the p-type layer containing Mg has a carrier concentration of 3×10^{17} cm^{-3} or more.

13. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that a Si-doped n-type layer is formed on a substrate using ammonia as a raw material, characterized in that the ammonia is charged into a charging container so that at least a portion of the ammonia is in a liquid phase and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

14. (previously presented): The method according to claim 13, characterized in that the Si-doped n-type layer is made of a Si containing gas that is disilane.

15. (previously presented): The method according to claim 13 or claim 14, characterized in that the Si-doped n-type layer has a carrier concentration of 3×10^{17} cm^{-3} or more.

16. (previously presented): An ammonia product for the manufacture of a GaN-based compound semiconductor, characterized by comprising a charging container and ammonia charged into the charging container so that at least a portion of the ammonia is in a liquid phase and characterized in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm as determined by Fourier-transform infrared spectroscopy (FT-IR).

17. (previously presented): An ammonia product for the manufacture of a GaN-based compound semiconductor, characterized by comprising a charging container and ammonia charged into the charging container so that at least a portion of the ammonia is in a liquid phase and characterized in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm and in that the charging container is made of manganese steel or aluminum alloy.

18. (previously presented): An ammonia product for the manufacture of a GaN-based compound semiconductor, characterized by comprising a charging container and ammonia charged into the charging container so that at least a portion of the ammonia is in a liquid phase and characterized in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm and in that the charging container has an inner surface subjected to plating treatment and polishing treatment.

19. (previously presented): An ammonia product for the manufacture of a GaN-based compound semiconductor, characterized by comprising a charging container and ammonia charged into the charging container so that at least a portion of the ammonia is in a liquid phase and characterized in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm and in that the charging container has a cylindrical shape.

20. (currently amended): A method for manufacturing a GaN-based compound semiconductor, ~~characterized in that a layer~~ comprising charging ammonia from an ammonia

product according to any one of claims 17 to 19 in a gaseous state into a reaction chamber housing therein a substrate, and forming a GaN-based compound layer ~~is formed~~ on ~~a~~ the substrate. ~~using the ammonia according to any one of claims 17 to 19 as a raw material, characterized in that the ammonia is charged in a gaseous state into a reaction chamber housing therein the substrate~~.

21. (previously presented): A method for manufacturing ammonia for the manufacture of a GaN-based compound semiconductor, characterized in that crude ammonia adsorbs water by contact with an adsorbent to form liquid phase ammonia and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

22. (previously presented): The method according to claim 21, characterized in that the adsorbent is synthesized zeolite or zirconium oxide.

23. (previously presented): The method according to claim 21 or claim 22, characterized in that a container into which refined ammonia is to be charged is subjected to at least one treatment of washing with refined ammonia and vacuum drawing.

24. (previously presented): A method for manufacturing ammonia for the manufacture of a GaN-based compound semiconductor, characterized in that crude ammonia is subjected to precise distillation to form liquid phase ammonia and in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

25. (previously presented): The method according to claim 24, characterized in that a container into which refined ammonia is to be charged is subjected to at least one treatment of washing with refined ammonia and vacuum drawing.

26. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that a buffer layer is formed on a substrate at a temperature lower than a temperature at which the GaN-based compound semiconductor is formed on the buffer layer, using as a raw material ammonia charged into a charging container so that at least a portion of the ammonia is in a liquid phase, characterized in that the liquid phase ammonia has a water concentration of 0.01 to 0.5 vol ppm.

27. (currently amended): The method according to claim ~~27~~26, characterized in that the substrate is formed of sapphire.

28. (previously presented): The method according to claim 26 or claim 27, characterized in that the buffer layer is formed of AlN.

29. (previously presented): A method for manufacturing a GaN-based compound semiconductor, characterized in that a buffer layer, an n-type clad layer, an active layer and a p-type clad layer are formed on a substrate using as a raw material ammonia charged into a charging container so that at least a portion of the ammonia is in a liquid state and another

portion thereof is in a gas phase, taken out in a gaseous state directly from the charging container, introduced into a reaction chamber housing therein the substrate and characterized in that the liquid phase ammonia has a water concentration 0.01 vol ppm or more and 0.5 vol ppm or less as determined by Fourier-transform infrared spectroscopy (FT-IR).

30. (previously presented): The method according to claim 29, characterized in that the water concentration of the liquid phase ammonia is controlled to 0.4 vol ppm or less.

31. (previously presented): The method according to claim 30, characterized in that the water concentration of the liquid phase ammonia is controlled to 0.2 vol ppm or less.

32. (previously presented): The method according to any one of claims 29 to 31, characterized in that the liquid phase ammonia has a residual impurity concentration, other than the water concentration, of 1 vol ppm or less.